

Mr. Paul Lang
Lang Products International
1919 4th St. N.E.
Minneapolis, Minnesota 55418

Dear Mr. Lang:

This is in response to your letter of April 15, 2003, requesting Federal Highway Administration (FHWA) acceptance of your company's portable sign stand, with modifications, as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). Your stand, the LTT-1 portable sign support frame, was initially found acceptable by the FHWA on August 13, 2002, (Acceptance Letter WZ-126.) You requested that we find this stand acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features" with lightweight lights and 0.100 inch thick aluminum sign substrates.

Introduction

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices were those lightweight devices which could be self-certified by the vendor, Category II devices were other lightweight devices which needed individual crash testing, Category III devices were barriers and other fixed or massive devices also needing crash testing, and Category IV devices were trailer mounted lighted signs, arrow panels, etc. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III.

The LTT-1 portable sign consists of a 1220 x 1220 mm (48x48 inch) diamond shaped 12.7 mm (½ inch) thick MDO plywood sign attached to 44.5 mm square, 2.7 mm thick (1 ¾ inches x 12 ga) perforated square steel tube uprights supported by 50.8 mm square, 3.0 mm thick (2 inches x 11 ga) steel tube removable arched legs. The uprights are secured onto the arched legs by a 22 inch x 1.5 inch x 1.5 inch x 3/16 inch receiver stud that fits inside the lower portion of the uprights. This stud is permanently welded onto the arched leg in a perpendicular orientation. All tubing is ASTM A500 Grade B steel. The fasteners are 76.2 mm (3 inch) long 7.9 mm (5/16 inch) grade 5 bolts secured by nylon insert lock nuts. The height of the bottom tip of the sign was a nominal 304.8 mm (12 inches) above ground level.

Your current request is for the following modifications:

The sign stand as crash tested and as described above, with the substitution of 2.54 mm (0.100-inch) thick aluminum for the 12.7 mm (½ inch) thick MDO plywood sign, and the use of a lightweight warning light, not to exceed 3.3 pounds.

Findings

Crash testing conducted by the Midwest Roadside Safety Facility (MwRSF) on a similar rigid-frame generic portable sign stand supports your requests. The stand tested by MwRSF supported an aluminum sign panel of 0.100-inch thickness, and also carried a lightweight warning light. It was found acceptable in our Acceptance Letter WZ-133 dated November 26, 2002. The performance of the MwRSF stand was similar to that of your stand – the stands in both tests were knocked aside by the vehicle and showed little, if any, potential for causing significant damage to the windshield.

Because of the similarity in performance between the LTT-1 and the MwRSF generic stand, and the fact that the MwRSF stand included the sign substrate and warning light you requested for your stand, we concur that the modifications you have requested to the LTT-1 stand will be acceptable for use on the NHS under the range of conditions tested, when proposed by a State.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of FHWA and NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-156 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.

- The LTT-1 stand is in “patent pending” status. If and when it is patented, it will be considered "proprietary." The use of proprietary work zone traffic control devices in Federal-aid projects is generally of a temporary nature. They are selected by the contractor for use as needed and removed upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are specified for use on Federal-aid projects, except exempt, non-NHS projects, they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternative exists or; (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which was provided with earlier correspondence.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device. Patent issues are to be resolved by the applicant and the patent owner.

Sincerely yours,

Michael S. Griffith
Acting Director, Office of Safety Design
Office of Safety

FHWA:HSA-1:NArtimovich:tb:x61320:7/3/03
File: h://directory folder/nartimovich/WZ156-LangFIN
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